twelve pages of host records. It is arranged in the following manner. Plant families are laid out in alphabetical order, and under each family there is a list of plant genera (also arranged in alphabetical order). For each plant genus the moth species recorded as feeding on that genus are listed, again in alphabetical order, but with no family affinity specified. This is roughly the same format W. T. M. Forbes used in his series of publications on *Lepidoptera of New York and Neighboring States.* Having used the host lists in both books, I find them somewhat frustrating. Most biologists are interested in host lists for particular moth or butterfly taxa. This type of information is difficult to retrieve from Common's Appendix B. First, one would need to use the forthcoming checklist of Australian moths to make a list of generic names for the moth group of interest, then one would have to search manually through Appendix B to compile a table of host plants according to moth taxon. In future editions of *Moths of Australia,* it would be helpful to have an "Appendix C" with host plants listed for each moth family.

The second way the book could be improved is slightly more radical, but it is absolutely necessary. The price should be lowered! My copy from E. J. Brill Publishers has a list price of $171.43. Having extolled the virtues of this book in terms of its quality and its extreme usefulness to students and researchers, such a high price makes the volume inaccessible for many people, a distressing state of affairs. Book prices have been known to drop, and I hope this one follows that pattern. A realistic price would be $65 or $70.—*James S. Miller, Department of Entomology, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.*

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The Genetics of Social Evolution.—M. D. Breed and R. E. Page, Jr. (Eds.). 1989. Westview Press, Boulder, Colorado, USA. 213 pp. $35.95.

The unifying theme in this collection of ten papers is how patterns of genetic variation relate to insect sociality, both contemporary processes of social homeostasis and the evolutionary history of group living and reproductive division of labor. All papers pertain primarily or entirely to Hymenoptera. Some of the papers are data-rich, some mainly theoretical. The emphasis is strongly population genetic, and when evolutionary history is discussed, only one paper is truly comparative, the rest relying on more traditional "plausible scenarios" to support various theories of social evolution.

Breed's introduction provides a concise review of the issues and terminology, clearly from a population geneticist's point of view. Papers by Page *et al.,* Owen, and Robinson and Page summarize recent work on the genetics of honeybees, in particular exploring the implications of genetically distinct subfamilies of workers within colonies. The role of colony-level vs. individual selection in maintaining social traits is explored. I was intrigued by a model explaining division of labor, in which genetic variation in response thresholds to stimuli determine which bees carry out certain tasks. As a behavioral model it explains very well why my wife takes out the garbage and I wash the dishes. Ross describes strong heterogeneity in the reproductive output of polygynous fire ant colonies (results which are largely repeated in other publications, but are nicely summarized here). Kukuk presents relatedness data for aggregations, neighborhoods, and colonies of the primitively eusocial bee, *Dialictus zephyrus,* suggesting that genetic viscosity is sufficient for kin selection to be effective.

Research on the evolution of sociality has focused on degrees of relatedness and kin selection, a result of the correspondence between haplodiploidy (and consequent high relatedness of sisters) and the multiple occurrence of sociality in the Hymenoptera. However, increasing discovery of multiple mating by queens, polygyny, and genetically disparate workers is eroding the credibility of this theory. Rather than dwelling on the individual reproductive cost of group living, the papers by Strassmann and Queller, stemming from their extensive work with the ecology of vespid wasps, emphasize the other side of the equation: the demographic benefit. A strong demographic benefit offsets the need for high relatedness in the evolution of sociality.

However, if ecological factors do favor group living, the question remains: Why so frequently in the Hymenoptera? Rather than haplodiploidy, could it be some other Hymenopteran feature that facilitates the evolution of sociality. For example, could some peculiarity of Hymenopteran individual recognition encourage group formation? Nestmate recognition is an understudied phenomenon, yet is a fundamental feature of social systems. Mintzer, in a novel and important study, demonstrates genetic components of nestmate recognition in Acacia ants, presents several alternative genetic models, and compares observed and predicted patterns.

Finally, Ward's paper on speciation, polygyny, and social parasitism in ants deserves special mention. A much touted but rarely applied approach to the study of evolutionary history is to map behavioral traits of interest onto phylogenies derived from independent (usually structural and/or genetic) data. Ward has used this approach to answer the questions 1) is polygyny a species-level trait (no, degree of polygyny is intraspecifically variable), and 2) are social parasites sister species of their hosts, and thus definite examples of sympatric speciation (no). The general treatment of speciation in ants is particularly valuable to myrmecologists. This paper seems out of place in this volume, and I fear will get less attention as a result.

The printing is clear and uniform throughout, I detected few typographical errors, and there is a thorough index.—*John T. Longino, Allyn Museum of Entomology, 3621 Bay Shore Rd., Sarasota, Florida 34234.*